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a digest of timely information

Editor - Captain F. W. Farrar. (MC). U.S.N.

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Thymectomy in the Treatment of Myasthenia Gravis: Myasthenia gravis was almost always a fatal disease before treatment with prostigmine was introduced. Although this drug and certain other palliative remedies have been most helpful in controlling symptoms and prolonging life, search for curative treatment has continued. In recent years thymectomy has offered hope of arrest or alleviation.

Attention was directed to the thymus because thymoma is known to occur in a substantial percentage of cases of myasthenia gravis. In certain additional cases hyperplasia of the thymus also has been noted. Removal of a thymic tumor or an enlarged thymus or even removal of an apparently normal thymus has been followed by clinical improvement. The results of operation have not been uniform, and for this reason it is desirable to present complete information regarding cases in which surgical treatment has been attempted.

Incidence of Thymus Pathology. In autopsies on patients who died from myasthenia gravis, thymic abnormalities have been found in 47 per cent by Miller and in 45 per cent by Campbell, Fradkin, and Lipetz. In a high percentage, the abnormality has been classified as thymoma. In cases reviewed by Gillespie the incidence of tumor was 50 per cent.

Almost all patients with a thymoma eventually develop myasthenia gravis, but the tumor may be present for some time before myasthenia appears. One patient treated at the Lahey Clinic by the authors had been known to have a tumor in the upper mediastinum, later proven elsewhere to be a thymic tumor, for more than a year before he presented symptoms. The authors have removed a thymoma from a 20-year-old male who had never had symptoms of myasthenia gravis.

With rare exceptions, tumors of the thymus associated with myasthenia gravis have been benign. In one case, reported by Turnbull, a malignant thymoma was removed, but there was no relief from the myasthenia gravis. Meggendorfer, quoted by Miller, found, in a review made in 1908, one malignant tumor among 60 cases of thymoma and myasthenia gravis then on record.

In a total of 32 thymectomies for myasthenia gravis, Clagett found a thymoma in 15 cases and hyperplasia of the thymus in 17 cases.

Minor changes in the thymus have been found not only in cases of myasthenia gravis but also in cases of primary hyperthyroidism, Addison's disease, and acromegaly, according to Sloan. In his study of 350 thymus glands removed at autopsy and those removed at operation, he did not find changes that were specific for myasthenia gravis.

Results of Surgical Treatment. The thymus gland has for a great many years been suspected of at least partial responsibility in the causation of many cases of myasthenia gravis. As early as 1908, Sauerbruch, and later

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von Haberer, attempted the removal of a thymic tumor. These early efforts ended in failure. The first report of successful removal of a thymic tumor with a favorable effect upon the course of the associated myasthenia gravis was made by Blalock, Mason, Morgan, and Riven (1939). This tumor was a necrotic mass; no active tumor cells were found, even though there was active myasthenia gravis. Pathologically, it was thought to represent the remains of a necrotic thymic tumor. The patient showed apparent recovery from the myasthenia gravis at the time. Blalock recently reported that death occurred from recurrence after a survival of five and one-half years.

The dramatic improvement in this tumor case led Blalock, Harvey, Ford, and Lillienthal (1941), to propose and try the effect of thymectomy in 6 cases of myasthenia gravis without demonstrable tumor. The early results as given in their preliminary report were sufficiently encouraging to warrant application in other cases both by the authors and by other surgeons in this country and throughout the world. In the first 20 cases that Blalock reported, there were 3 early postoperative deaths, 1 later death, 3 patients essentially well, 5 considerably improved, 5 moderately improved, and 3 unimproved. All 16 surviving patients expressed the opinion that the operation had been helpful. Hardymon and Bradshaw reported 3 cases of thymectomy with improvement in 1 and no improvement in 2. Viets reported the results in 15 cases from the myasthenia gravis clinic of the Massachusetts General Hospital. Two patients were considered in complete remission, 2 more as distinctly improved, 3 as moderately improved 1 as slightly improved, and 3 as having been operated upon too recently to be evaluated. Clagett reported 17 thymectomies for myasthenia gravis without the presence of tumor in which there was 1 hospital death and 2 later deaths; 2 patients were considerably improved; 6 were moderately improved, and in 6 the operation was thought to have been of little help. He also reported 15 thymectomies for myasthenia gravis with associated tumor in which there was a remission in 3 cases and considerable improvement in 6 cases. Keynes reported upon 51 cases of thymectomy for myasthenia gravis. He did not classify 10 because of mental abnormalities in 1 and operation too recently done in 9. Of the 41 that could be classified, death resulted postoperatively in 8; 9 patients were considered as well; 11 as greatly improved; 8 as somewhat improved; and 5 were no better. The authors' 8 cases at the Lahey Clinic have been classified as follows: considerably improved, 2; moderately improved, 4; slightly improved, 1; and dead, 1. In a total of 129 cases reported by Blalock, Bradshaw, Clagett, Keynes, Viets and the authors, the results are: essentially well, 17; considerably improved, 24; moderately improved, 27; and slightly improved, 2. The others are unimproved, unclassified or dead. It would thus appear that 68 of these 129 cases, or 52 per cent, may be regarded as significantly better after the operation

Indications for Thymectomy. It should not be necessary to point out the need for accurate diagnosis of myasthenia gravis before surgical treatment is considered. As a rule, the diagnosis can be made easily but in the past, cases in which the surgical treatment might now be advised have been overlooked. The disability has been wrongly attributed to some serious neurologic disorder considered incurable, without even trial of medicinal therapy. This error should

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not be made by anyone who is familiar with the nature of the muscular weakness in myasthenia gravis. There are three features which serve to identify it. It is selective, it is visible, and it is variable. It almost always begins in the muscles controlling the movements of the eyeballs and the muscles concerned with speech, swallowing, and mastication; general muscular weakness later develops as the disorder progresses. The change in muscular function can readily be seen in ptosis of the eyelids, strabismus, or obvious weakness in the muscles of the face, mouth, and tongue. It tends to appear with repeated effort and to decrease or disappear with rest. When the condition is suspected, the diagnosis can be determined by observing the effects from an injection of prostigmine, in which case, when the disease is present, there is almost immediate relief, lasting for two hours or more. A further test consists in the intra-arterial injection of prostigmine, which produces muscular fibrillation in the normal individual but simply increases strength in the myasthenic patient.

In the mildest cases it may be difficult to recognize the disorder if the patient is seen at a time when he is rested and thus free from obvious weakness. In such cases, the curare test has been recommended. The administration of a test dose of curare will cause the weakness to appear; it is then abolished by administration of prostigmine.

After the diagnosis of myasthenia gravis has been established, medicinal treatment should always be carried on for a trial period of at least six months. The medication used consists of ephedrine, 25 mg., twice daily, and prostigmine, administered in 15 mg. tablets, numbering from 2 to 24 a day as needed to secure results. Some patients find that the use of potassium chloride gives added relief, but the majority do not feel that the benefit is great enough or certain enough to continue treatment with the large doses required to insure appreciable action. The from 12 to 18 tablets of potassium chloride added to the 2 capsules of ephedrine and one or two dozen prostigmine tablets will seem beyond their capacity. Guanidine is a fourth remedy which has proved helpful in certain cases, but because of the relatively slight and uncertain benefit, and the frequency of toxic effects, the authors seldom use it for a prolonged period.

The course of myasthenia gravis varies greatly. With medication some patients are completely relieved of symptoms and are able to carry on their work and normal activity. In a few cases spontaneous remission has occurred in the course of time, permitting omission of treatment. Other patients, although relieved in part, continue to be troubled with the typical symptoms for at least part of each day. These are the patients for whom the possibility of further help from surgery is considered if their disability continues after a six months' trial of reasonably intensive medicinal treatment.

Selection of Cases. Thymectomy is a surgical procedure of considerable magnitude and the very nature of the illness makes operation of any kind on patients with myasthenia gravis unusually hazardous. In the critically ill patients with respiratory failure impending, operation could not be done without almost

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certain fatal outcome. In such cases, radical treatment should be deferred in the hope that intensive medicinal treatment will bring the patient through the crisis and permit the operation to be undertaken at a later time under more favorable circumstances.

The patients with myasthenia gravis of mild degree should be excluded from the surgical group also because in them rehabilitation by simple medication is effective.

The age of the patient is an important factor. The risk of operation must be considered as greatly increased after middle age. It is probably undesirable to operate on any patient older than 35 or 40.

Of 8 case histories reported by the authors the following is included:

Case 5: A woman of 29 years was first seen at the Clinic on 29 February 1940 with complaints of five years' duration which were typical of myasthenia gravis. She was treated medically for the succeeding five years with gradually increasing doses of prostigmine bromide, later supplemented by ephedrine sulfate. On a dosage of 120 mg. of prostigmine and 25 mg. of ephedrine sulfate she was getting along fairly well but was handicapped because of weakness in her hands which made it impossible for her to operate office machines. She had much difficulty with her speech and wanted to attain a better career than her disease would allow.

She requested thymectomy, which was performed through an anterior mediastinotomy incision on 17 May 1945. The thymus measured 12.5 by 1 by 0.5 cm. The pathologic diagnosis was thymic hyperplasia. She had an uneventful convalescence for forty-eight hours and then fairly abruptly developed dyspnea. A chest tap was done and 150 c.c. of serous fluid removed from the right pleural cavity. The dyspnea temporarily improved but soon recurred, accompanied by coughing with frothy sputum. She developed tension pneumothorax on the right side which was probably the result of an unrecognized injury to the lung by the aspirating needle at the time of the thoracocentesis. The pneumothorax was treated by constant suction and the lung thus kept expanded. On the fourth postoperative day her prostigmine need rose to 180 mg. a day and it was difficult to keep her oxygenated even in a tent. At the end of 108 hours she became markedly worse with such weakness of the muscles of respiration that respiratory exchange was inadequate. Oxygen from a tent was supplemented with nasal oxygen and she was placed in a respirator. From this critical low point in her postoperative course there was gradual and steady improvement, and on the seventh postoperative day all prostigmine and ephedrine sulfate could be omitted. She was removed from the respirator and oxygen therapy was discontinued on the sixth postoperative day. She took no further prostigmine and felt no need for it. This was in sharp contrast to her preoperative course, in which she felt urgent need for prostigmine at frequent intervals, and unless she received it, had difficulty in talking and swallowing. She was discharged on 3 June 1945.

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The patient returned to work 23 August, and when seen on 5 September, had taken no prostigmine since leaving the hospital. She was working full time; she frequently went dancing in the evening and stated that she enjoyed the more vigorous types of dancing. Even fast walking had been impossible for her preoperatively. The authors noticed on examination, however, that her speech was thick and guttural after she had been kept talking for several minutes steadily. The eyelids did not droop but, on the other hand, did not close well. It was suspected that she still had myasthenia gravis, although then in a latent form. This suspicion was confirmed on 5 December, when she had a mild partial relapse. Since that time she has required prostigmine in varying doses from 60 to 105 mg. If she takes more she has abdominal cramps. Preoperatively she never had abdominal cramps even when, on a few occasions, she had taken over 400 mg. in twenty-four hours. On this amount of medication she is working full time and feels well, with full control of symptoms.

This case illustrates vividly the severity of illness and danger to life which any complications postoperatively present in myasthenia gravis. The thymectomy itself is neither very difficult, nor particularly dangerous, but there is high risk that a complication which would be mild in a normal individual might endanger life in a patient with myasthenia gravis. The authors have classified this patient as moderately improved.

Discussion. Of the 8 patients reported upon by the authors, one died postoperatively and 7 are living and have experienced subjective and functional improvement. As a result of the operation, the progressive course of myasthenia gravis in 2 of the cases was dramatically reversed. The change may be attributed to the removal of the thymus. It could possibly be due to the anesthesia or to coincidental spontaneous remission. But it is important, also, to realize that they all still have myasthenia gravis. The estimate of the degree of improvement made by the patient in some cases exceeds that made by the physician, but from a practical standpoint the fact of improvement can be granted without argument. On this basis the operation has been, to a greater or lesser extent, successful (excluding, of course, the one fatal case). On the other hand, from the standpoint of complete and permanent cure of myasthenia gravis, it is apparent that thymectomy has failed in all cases. If one postulates that the mere presence of the thymus is responsible for myasthenia gravis in sensitized individuals and attributes improvement when such occurs after thymectomy to removal of the thymus, consistency in logic would imply that some thymic tissue remains in individuals who have shown persistent symptoms of myasthenia gravis after the operation. In each case, the thymus was entirely removed unless some part of it escaped careful search of the mediastinum and neck or is represented by thymic tissue elsewhere in the body. If the thymus is not responsible for the disease, at least in part, then one is at a loss to explain the improvement or remission that has occurred in a number of cases after its removal because rapid spontaneous remission has not followed with any such constancy after anesthesia or operations for other conditions on patients with myasthenia gravis. (Dis. of Chest, Sept.-Oct. '47 - R. Adams and F. N. Allan)

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A Comparison Between the Clinical Effects of Pyribenzamine and Those of Benadryl: The purpose of the present report is to add observations on pyribenzamine in 150 adult patients and on the practical use of benadryl in 53, including cross trials in 33 cases and the treatment of constitutional reactions with the histamine antagonists in 20.

A majority of the persons treated were inpatients or outpatients complaining of hay fever, bronchial asthma, or acute (often drug) urticaria, but a few had atopic dermatitis, chronic urticaria, dermographism, or acute serum reaction. Sixteen patients who had developed hay fever, asthma, or cutaneous allergy directly after an overdose of therapeutic allergen were given one of the two antihistaminic drugs orally on twenty such occasions to determine its value.

The dose routinely prescribed for both drugs was 50 mg. by mouth, to be repeated in from 1 to 4 hours if symptoms persisted or recurred but not oftener than five times in any 24-hour period. Usually, one such dose sufficed to control the symptoms for 4 hours, so that few patients ingested more than two or three a day. The drugs were used for symptomatic relief only and not employed prophylactically. Many of the trials were initiated under the direct supervision of the authors or their assistants, so that the results might be judged objectively as well as subjectively.

Comparative Results of Histamine Antagonists in Allergic Disorders.

Disorder	Results with Pyribenzamine				Results with Benadryl			
	Complete relief	Partial relief	No relief	Total patients relieved	Complete relief	Partial relief	No relief	Total patients relieved
Allergic rhinitis:								
Extrinsic seasonal (hay fever)	27	24	9	51 (85%)	14	17	7	31 (82%)
Extrinsic nonseasonal	3	1	2	4 (67%)	2	0	0	2 (100%)
Intrinsic	2	0	0	2 (100%)	0	0	0	0
Asthma:								
Extrinsic seasonal	0	0	1	0	0	1	0	1(100%)
Extrinsic nonseasonal	2	4	2	6 (75%)	0	0	1	0
Intrinsic	0	3	4	3 (43%)	0	0	2	0
Urticaria, acute:								
Due to drug	4	20	3	24 (89%)	0	2	0	2 (100%)
Due to other factor	2	0	2	2 (50%)	0	0	0	0
Urticaria, chronic	3	3	6	6 (50%)	1	0	0	1 (100%)
Dermatitis, atopic	0	1	2	1 (33%)	0	0	2	0
Pruritus	0	1	1	1 (50%)	0	0	0	0
Constitutional reaction:								
Mild	8	4	0	12 (100%)	2	1	0	3 (100%)
Moderately severe (asthma)	2	0	2	2 (50%)	0	1	0	1 (100%)
Dermographism	0	1	0	1 (100%)	0	0	0	0
Serum reaction	0	1	0	1 (100%)	0	0	0	0
Totals	53	63	34	116 (77%)	19	22	12	41 (77%)

Among the 150 patients given pyribenzamine and the 53 given benadryl by mouth, partial or complete control of symptoms was noted by over 80 per cent of those with acute urticaria or allergic rhinitis of seasonal (pollen) origin.

Twenty-three of 33 patients treated first with one and later with the other histamine antagonist obtained equal relief with the two. Of the remainder, 5 preferred benadryl, and 5 pyribenzamine.

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The side effect most frequently encountered with either drug was sedation, which was noted in 61 per cent of cases after benadryl and in 20 per cent after pyribenzamine. The second most frequent side reaction was gastro-intestinal disturbance, which developed in 10 per cent of the former and 14 per cent of the latter. Central excitation and other untoward reactions, which were of relatively mild intensity and infrequent occurrence, were observed in about the same proportion of both groups.

Administration of the drugs to allergic persons during constitutional reactions in 20 cases produced encouraging results for urticaria, hay fever, and mild bronchial spasm, but severer asthma seemed to resist their influence.

There seems little doubt that these histamine antagonists are of definite value in the symptomatic relief of acute urticaria and of seasonal hay fever. Their value in the prevention or control of manifestations due to overdosage with therapeutic allergens is difficult to appraise. If, as in the experiments of Arbesman, the drug is given shortly before the overdose, there is always the possibility that on this particular occasion the dose would have been tolerated even without the drug. On the other hand, if the development of systemic manifestations is awaited, the drug must be allowed from 15 to 20 minutes for its effect to become apparent. Obviously, such delay would be unwarranted if the situation was at all critical. Therefore, the study of the new drugs is limited to patients with relatively mild systemic reactions. Under these circumstances, the tendency of reactions from mild overdosage to subside spontaneously after 20 or 30 minutes makes judgment of the effects of the drugs difficult.

Theoretically, it might be expected that such overdosage symptoms as urticaria, hay fever, and histamine-like hypotension would be counteracted by the drugs. If bronchospasm developed, however, it would be anticipated that they would prove less effective. The authors' limited experience with overdosage reactions seems to be in keeping with these theories. It seems probable that the simultaneous administration of adrenalin intramuscularly and of a histamine antagonist orally would ensure prompt relief and sustained control of symptoms other than asthma. In the latter situation it might be wiser to replace the antihistamine drugs with neosynephrin hydrochloride or some similar, orally administered antispasmodic.

Although seasonal hay fever and other extrinsic types of vasomotor rhinitis are symptomatically relieved by the new drugs in a high proportion of trials, the most satisfactory management of hay fever appears to rest on a combination of specific therapy and of symptomatic relief with the antihistaminic agents. Many of the patients came to this conclusion by the end of the 1946 ragweed pollinating season, whether they had omitted their customary "booster" courses and had depended on the drugs alone or had taken injections and employed the drugs only occasionally when necessary. The new drugs play their most valuable role in acute and even in some cases of chronic urticaria because no other satisfactory remedies are available. This is true also in such cases of bronchial asthma as respond to benadryl or pyribenzamine.

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There are important differences in the types and incidences of side reactions that follow the two drugs. Although benadryl produced sedation in 60 per cent of patients, this reaction may be advantageous when fatigue, anxiety, or insomnia complicates the allergic disorder. The sedative effect is also highly desirable for pruritus. Benadryl should be deliberately selected in such cases. On the other hand, patients whose efficiency and judgment may be impaired by sedation should be given pyribenzamine for daytime use. Since gastro-intestinal complications follow pyribenzamine somewhat oftener than they do benadryl, the latter is probably more suitable for patients with abnormalities of gastro-intestinal function. It was the authors' impression that the taking of food with pyribenzamine or of caffeine or benzedrine with benadryl obviated some of the side effects.

Whereas most patients given first one remedy and then the other reported comparable results with each, a small group responded selectively. It would be well, therefore, to change to the other drug when one gives rise to either undue side reactions or unsatisfactory therapeutic control. (New England J. Med., 2 Oct. '47 - M. H. Loveless and H. Brown)

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Granuloma Inguinale - Streptomycin Therapy and Research: It is generally recognized that antimonials have been used with varying degrees of success in the treatment of granuloma inguinale. Such antimonial preparations as anthiomaline, fuadin, diramin, and tartar emetic are effective when therapy is started in the early stages of the disease. The effectiveness of the antimonials, however, decreases in direct proportion to the chronicity of the infection. With the advent of the antibiotics, renewed hope for a successful therapeutic agent was entertained. Penicillin and tyrothricin proved valueless.

Through the auspices of the United States Public Health Service, streptomycin was made available for trial to the University of Georgia School of Medicine. The therapeutic results have been remarkable, for extensive granulomatous lesions which had been present for periods of from 8 to 10 years were seen to heal in from 2 to 3 weeks' time. Moreover, failures have been few in number. The incidence of relapses, however, will not be known until a follow-up of several years is made.

This report is a brief summary of the experiences of the past year gained by the University of Georgia group working on granuloma inguinale.

The patients selected for the treatment of granuloma inguinale with streptomycin fell into the following categories: (a) patients who had not received any form of specific therapy and in many of whom the lesions were of relatively short duration, i.e., less than 6 months; (b) patients who had responded to supposedly adequate antimonial therapy, but in whom relapses had occurred; and (c) patients who had been inadequately treated over a period of many years and who had become chemoresistant.

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In 58 patients of this series, Donovan bodies were demonstrable either in smears or biopsy section before the institution of streptomycin therapy. In one patient who presented typical lesions, Donovan bodies could not be demonstrated, although the agency that referred this patient reported that Donovan bodies had been found, after which antimony was started. All patients were Negroes and ranged in age from 19 to 70 years. Males predominated in the ratio of 2 to 1. Regardless of the category into which the patients fell, the response to therapy was more or less uniform.

The experience gained in the treatment of these 59 patients by the use of streptomycin permits the conclusion that this antibiotic is the most effective drug available and is far superior to the antimonials. It is too early to evaluate completely this method of treatment since follow-up studies will require several years. The posttherapy period of observation ranges from a few weeks to 7 or 8 months. There have been four relapses. In two, therapy was inadequate (less than 4 Gm.), and the patients responded to a second course. A third patient became streptomycin resistant (28 and 94 Gm.), and has been placed on antimony therapy with relatively poor results. In a fourth patient Donovan bodies have reappeared in the unhealed lesions after 40 Gm. of streptomycin. A therapeutic regimen of 4 Gm. per day for 5 days (20 Gm.) has proved both adequate and convenient. Although lesions may still be present after discontinuation of therapy, progressive healing takes place. Complete healing is noted within a period of from 1 to 3 weeks. Toxic reactions have been few and mild in nature.

It has been found that streptomycin is not immediately effective, but that penicillin is effective against fusospirochetes that are present as contaminants in granuloma inguinale.

Following streptomycin therapy Donovan bodies disappear and disintegrate rather rapidly (average, 6 days); whereas, following antimony therapy fragmentation of the Donovan bodies without reduction in numbers occurs early, and decrease in numbers occurs eventually.

Donovan bodies were isolated in pure culture from a Negro patient with clinical symptoms of granuloma inguinale and grown by repeated transplants in the yolk sac of developing chick embryos.

A typical lesion of granuloma inguinale was experimentally produced in a volunteer Negro man by transplanting a small piece of tissue from a lesion in the right inguinal region to the left thigh. No infection occurred from the injection of a filtrate prepared from a portion of the tissue used for autoinoculation.

Characteristic Donovan bodies were demonstrable at the site of injection in a patient 60 days after inoculation of yolk-sac culture. (J. Ven. Dis. Information, Sept. '47 - R. B. Greenblatt et al.)

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Morphologic Changes in the Lymphocytes of Persons Exposed to Ionizing Radiation: Examination of supravital preparations of the blood of persons exposed to ionizing radiations and toxic chemicals at the Los Alamos Scientific Laboratory has revealed the presence of an unusually large number of refractive neutral red bodies in the cytoplasm of the circulating lymphocytes. These bodies are also present in smaller numbers in lymphocytes of unexposed persons. They can be distinguished from intracellular vacuoles which also stain with neutral red. The increase in neutral red bodies in chronically exposed persons is evident even when exposure to radiation is within the tolerance range, namely, not greater than 0.1 roentgen of x-rays or gamma rays per day delivered to the entire body. The neutral red bodies are found in increased numbers after acute exposure to doses of ionizing radiation which do not affect the total white blood cell count, the total lymphocyte count, or the differential blood cell picture.

Since the morphologic change in the lymphocytes reported in this article can be visualized only in supravital preparations, a detailed account of this technic as used in the Los Alamos Medical Laboratory is given:

Microscopic slides and cover slips are carefully cleaned with potassium dichromate-sulfuric acid solution. They are then rinsed with distilled water, soaked several days in ethyl alcohol, dried, and stored in a dust-free box. A small drop of blood from a fresh stab incision on the finger or lobe of the ear is picked up with a clean cover slip (No. 0). The glass is inverted and allowed to fall on a microscopic slide on which an alcoholic solution of neutral red and Janus green has dried. When the blood has spread between the two surfaces to form a thin film, the cover slip is rimmed with petroleum jelly. The preparation is kept at from 10° to 15° C. until just before examination, when it is allowed to come to room temperature.

In order to obtain adequate uptake of the dyes by the leucocytes, it has been necessary to use much stronger solutions of stain than those recommended in the literature. The dye solution used consists of 4.0 ml. of a saturated alcoholic solution of Janus green and 16.4 ml. of a saturated alcoholic solution of neutral red dissolved in 100 ml. of absolute ethyl alcohol freshly prepared by the sodium phthalate method. The alcoholic solution is allowed to flow onto clean microscopic slides and the excess is wiped off immediately. The slides are dried and stored in light-proof, dust-free containers. Freshly stained slides are prepared every forty-eight hours. Presumably, the intensity of scattered sunlight at this altitude (7,300 feet above sea level) modifies the dyes in an unknown manner, a fact which makes necessary the use of higher concentrations of staining solutions. The appearance of the cells and uptake of dye by leucocytes resulting from the use of slides prepared with these strong solutions do not differ in any way from that observed in other laboratories where more dilute solutions of supravital dyes are employed.

This study covers a two-year period from 1944 to 1946. All of the subjects were employed at the Los Alamos Scientific Laboratory. Except for those in the

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control group, all persons were engaged in work which resulted in exposure to ionizing radiation or toxic chemicals in the period from 1943 to 1946. With rare exceptions, the exposure was limited to one type of ionizing radiation or to one kind of chemical. Although no consideration was given to the previous exposure record of the subjects, in practically all cases except some of those who had been exposed to external radiation, previous exposure had been negligible. One thousand sixty-four hematologic studies on 364 subjects divided into control and exposure groups were analyzed.

These refractive neutral red bodies, previously described in normal lymphocytes by Gall, which have been observed in increased numbers, were irregularly placed throughout the cytoplasm in the lymphocytes of persons exposed to ionizing radiations and toxic chemicals. They were irregular in shape, varied considerably in size, and had a more decided brick-red color than did the neutral red-staining vacuoles (see figure below and the one on the opposite page). There was no increase in number or size on standing twelve hours at

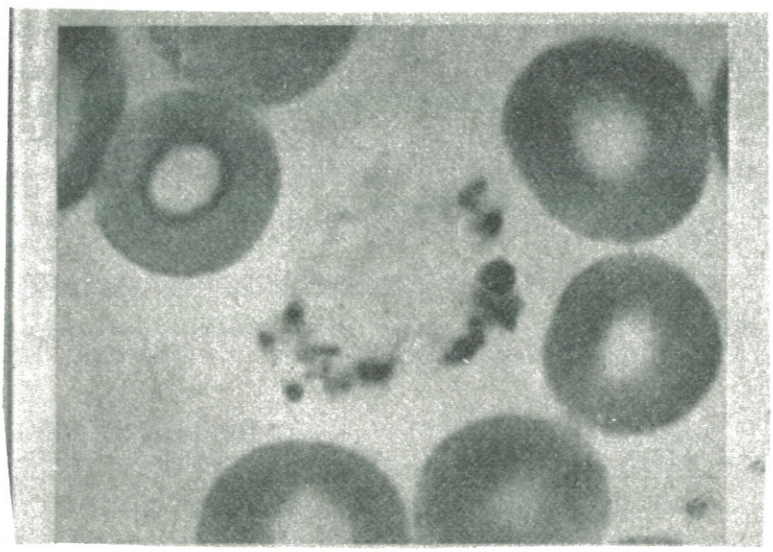

Fig. 2.—Photomicrograph (magnification ×1200) of a supravital preparation of blood from a subject after exposure to small doses of gamma rays for a period of two months. There are fifteen refractive neutral red bodies in the lymphocyte, some of which are almost out of focus. The large shadow at three o'clock is formed by two refractive bodies. The other shadows in the cytoplasm are produced by mitochondria.

from 10° to 15° C. The number of refractive bodies per cell varied from zero to more than thirty. The refractiveness of these bodies resembles that of the granules in cells of the granulocytic series and distinguishes them from vacuoles and nonrefractive bodies which also stain with neutral red dye.

Examination of the same blood samples stained with Wright's, Giemsa's, and peroxidase stains revealed no morphologic abnormalities of the lymphocytes similar to that described.

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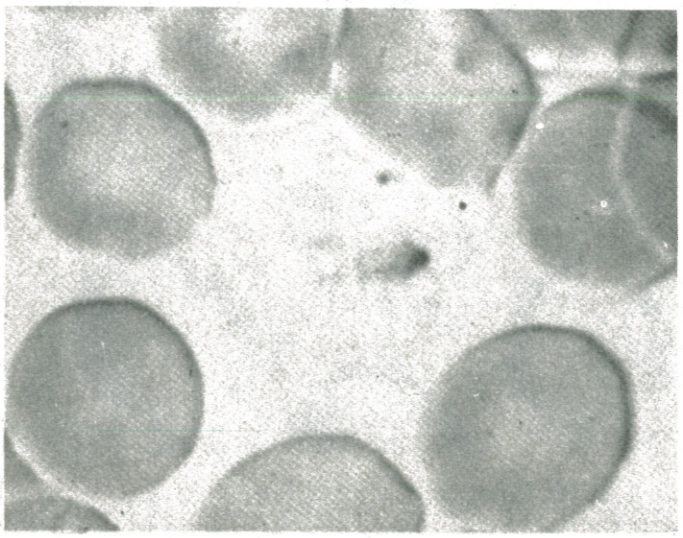

-Photomicrograph (magnification ×1200) of a supravital preparation of blood cells of a subject exposed to ionizing radiation. There are fifteen refractive neutral red bodies in the lymphocyte at the center of the picture, of which only a few can be seen at this focus. One refractive body is clearly seen at one o'clock. The apex of the V shaped shadow at three o'clock is formed by a cluster of five refractive neutral red bodies. The remainder of this shadow is composed of mitochondria and three neutral red bodies, all of which are partly out of focus.

By using contrast microscopy, additional information was gained about the structure of the refractive neutral red bodies. If individual cells in a supravital preparation were examined first through an ordinary microscope and then through a phase microscope, it was observed that the refractive neutral red bodies showed a high phase contrast, but the nonrefractive and vacuolar neutral red-staining bodies showed a low phase contrast (see figure on following page). This indicates that the density of the neutral red bodies is high and that they probably exist in the solid or granular phase. The mitochondria are the only other structures in the lymphocytes that show a high phase contrast. These bodies are not easily confused with the neutral red bodies under the contrast microscope since they are smaller and their green color is poorly transmitted through the phase optical system, and the red color of the refractive bodies is well transmitted.

It was seen that the increase of the neutral red bodies in the lymphocytes of the exposed groups represents essentially a quantitative rather than a qualitative change. There was a correlation between the percentage and total number of abnormal cells and the magnitude of chronic exposure. In order to facilitate the demonstration of lymphocytic changes of this nature, it was decided to differentiate between cells which contained an abnormally large number of refractive neutral red bodies and those which did not. It was agreed, therefore, on a completely arbitrary basis, to designate any lymphocyte with five or less

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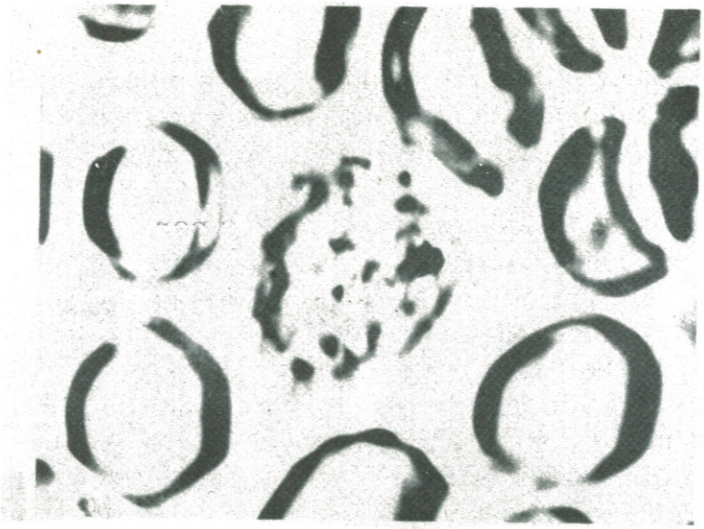

—Photomicrograph of same field as shown in Fig. 3, through phase optical system (1.8 mm. oil immersion objective with integral diffraction plate, type 1B-0.25). All of the fifteen refractive bodies in the lymphocytes can be identified in this picture because of the great depth of focus of the phase microscope. Note the deep shadows cast by the cluster of refractive bodies at three o'clock and by the single body at one o'clock seen in Fig. 3. The light shadow extending from eight o'clock to eleven-thirty o'clock is produced by mitochondria.

neutral red bodies as "normal" and to consider any cell with six or more bodies as "abnormal."

Some of the charts made in these studies show the increase in percentage of abnormal lymphocytes in persons accidentally exposed to single, large, instantaneous bursts of general body radiation. It is unfortunate that previous determinations of the percentage of abnormal lymphocytes had not been made on these subjects. Single exposures to general body gamma radiation which did not exceed 5 roentgens and which were delivered over a period of several hours produced no increase in the percentage of abnormal lymphocytes.

Increases in abnormal lymphocytes have been observed in rabbits and cows exposed to large doses of ionizing radiation. Morphologic changes of this type in the lymphocytes of mice and rats exposed to radiation could not be detected because the large amounts of neutral red dye normally taken up by the cytoplasm of the lymphocytes interferes with the identification of the refractive bodies.

A survey of the literature has failed to disclose previous descriptions of similar morphologic changes in lymphocytes after in vivo exposure to small repeated doses of ionizing radiation. Morphologic changes in living cells of various kinds have been reported following exposure to single large doses of radiation. Prigosen has reported the appearance of neutral red bodies in

(Not Restricted)

irradiated tumor cells. Recently Schrek described an increase in cytoplasmic vacuoles in dark-field preparations of lymphocytes after in vitro and in vivo exposure to x-rays.

A significant difference between the controls and the groups exposed to radiation was observed only for (1) total leucocyte count, (2) the proportion, and (3) the absolute numbers of abnormal lymphocytes. In the case of the total white blood cell count, the difference could be demonstrated by comparing the average counts for each group. However, because most of the total counts of all groups were between 5,000 and 9,000 cells per cubic millimeter, the value of any individual count had little significance in determining the exposure group of the subject. On the other hand, the difference in the percentage of abnormal cells and the absolute abnormal cell counts between control and exposed subjects is reflected in the value for an individual subject. Most of the controls had less than 20 per cent abnormal cells or 400 abnormal cells per cubic millimeter, but all of the more consistently exposed subjects showed percentages and total numbers of abnormal cells above these levels. There was so little overlap of chart points for exposed and control groups that the appearance of few or many abnormal cells has more than chance significance in determining the exposure of any given individual.

A difference in percentage and absolute numbers of abnormal lymphocytes was also shown to exist between the controls and the groups exposed to certain chemicals. In this respect, it should be emphasized that the biologic action of natural uranium is due to its chemical rather than its radioactive properties. Thus the increase in percentage of abnormal lymphocytes shown in those exposed to uranium is probably related to its chemical effect. An increase in percentage of abnormal cells seen in those who had been exposed to lead oxide fumes or metal fumes is added evidence pointing to the fact that exposure to toxic chemicals changes the percentage and the absolute number of abnormal cells. These subjects showed no clinical or laboratory evidence of plumbism except for an occasional mild degree of basophilic stippling of the red blood cells. An increase in abnormal lymphocytes was also found in persons working with industrial nonradioactive chemicals besides uranium and lead.

It was evident from charts made in these studies that exposure to a single large dose of ionizing radiation increases the proportion of abnormal cells in the circulating blood. The response of the lymphocytes of four subjects exposed to an instantaneous burst of total body radiation was essentially the same, although the radiation dosage of the subjects differed by a factor of ten. It must be concluded, therefore, that the increase in abnormal lymphocytes is not proportional to the dosage when administered as a single brief exposure. (J. Lab. and Clin. Med., Sept. '47 - A. Dickie and L. H. Hempelmann)

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Reports on USN Research Projects:

(Not Restricted)

Maxillofacial Prosthesis. A new technic for making maxillofacial prosthetic restorations in vinyl resin has been developed at the U. S. Naval Dental School. It includes use of shell-like metal molds and represents refinements and modifications of technics developed at the school for hand and digit prosthesis under the same research project. Presumably, the technic can be applied to restoration of almost any part of the body.

Vinyl resins should be processed in a metal mold if optimum qualities are to be obtained.

The resin described in the report is far from being the ultimate in restorative materials, but it does possess greater strength, lifelike appearance, and color permanence than other available materials. Search is being continued for a still better resin. (Proj. X-573, Rep. No. 3, May '47, Nav. Dental School, Bethesda, Md. - H. J. Towle, Jr.)

(Not Restricted)

Bacteriological Study of Concentrated, Frozen Orange Juice. In connection with trials of frozen concentrated orange juice as an addition to the submarine ration, the question was raised concerning the likelihood of bacterial growth and contamination if the material were inadvertently allowed to thaw and then refreeze.

In this study the growth of pathogens in frozen concentrated orange juice after thawing was investigated by inoculating the thawed juice with Proteus vulgaris, Escherichia coli, enterotoxin-producing strains of Staphylococcus aureus, and Clostridium botulinum, types A and C. S. aureus and P. vulgaris were found to remain viable for only eight hours, and E. coli for only four hours. Growth or toxin production in the orange juice medium by two strains of enterotoxin-producing S. aureus, or C. botulinum, types A and C, were not obtained. A rapid anaerobic fermentation causing swelling of the cans after 24 hours occurred in cans held at 20° C. (NM 011 015, Rep. No. 1, 2 Sept. '47, Nav. Med. Res. Inst., Bethesda, Md. - A. B. Smith and J. D. Gillmore)

(Not Restricted)

A Study of Mean Skin Temperature and Comfort of a Large Group of Naval Personnel Living in a Simulated Battleship Berthing Compartment. An opportunity was afforded to test the relationship between comfort and mean skin temperature measured on some eight representative body areas in a group of about fifty men living continuously for weeks under controlled thermal conditions of 84° F. dry bulb, 71° F. wet bulb, and an air movement of 30 cubic feet per minute in a simulated battleship compartment.

It was found that all subjects were fairly comfortable upon waking in the morning in air temperatures between 82° and 86° F.; the median skin temperature was about 92.5° F. Heat discomfort was experienced under air conditions of 90° F. dry bulb and 80° F. wet bulb; the mean skin temperature under these

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conditions approached 95° F. Sensations of cold were associated with an air temperature of 71° F. and a mean skin temperature of less than 92° F.

These findings are essentially in agreement with those found by previous workers in experiments of short duration employing comparatively few subjects. They tend to confirm the concept that mean skin temperature offers an objective index for evaluating the influence of environmental thermal factors on the comfort of men resting or engaged in light activities. (Proj. X-205, Rep. No. 8, 2 Sept. '47, Nav. Med. Res. Inst., Bethesda, Md. - C. P. Yaglou and W. V. Consolazio)

(Not Restricted)

A Semimicro Method for the Colorimetric Determination of Tissue Lipids. In this study a rapid colorimetric method for the analysis of lipids in small amounts of blood and tissue is presented. The tissue is ground in sand with accepted fat solvents, filtered, and aliquots of the extract are used for subsequent determinations. Phospholipid is determined indirectly, cholesterol is determined by the Liebermann-Burchard reaction, and total fats by oxidation with Nicloux's reagent and subsequent colorimetric estimation of chromate formed.

The technic is simple and convenient for routine work and requires no elaborate equipment. The adaptation of the oxidative determination of organic material to use with the Evelyn colorimeter enables all determinations to be made with this instrument. However, this method does not enable one to separate the neutral fats from free fatty acids and it does employ indirect method for determining phospholipids. Nevertheless, it has been found that this procedure yields results that are consistently reproducible when the fats are of known composition.

This procedure provides a better extract for further studies of the properties of the fats such as acetone recrystallization, viscosity, and ultraviolet absorption spectra, on the assumption that the fats are mainly unchanged and completely extracted. (NM 007 030, Rep. No. 1, 1 July '47, Nav. Med. Res. Inst., Bethesda, Md. - R. H. Weaver et al.)

(Not Restricted)

Respiratory Excretion of Methyl Alcohol by White Rats. The controversial nature of reports concerning the importance of the role of respiration in the disappearance of methyl alcohol from the body is typical of the lack of precise knowledge surrounding its metabolism.

In this study the excretion of methyl alcohol from the body by the respiratory system was investigated by passing expired air through an acid potassium dichromate solution at room temperature and measuring the chromate found. A glass face mask was used to collect the respiratory output. When 1983 mg. of methyl alcohol was given by gavage to white rats, they excreted methyl alcohol at a rate of 31 per cent over a period of from 96 to 138 hours. The inhalation of 8 per cent carbon dioxide in oxygen for short periods (up to 90 minutes per eight hour sampling period) had little effect on the total respiratory excretion

(Not Restricted)

of methyl alcohol. (NM 007 031, Rep. No. 4, 23 July '47, Nav. Med. Res. Inst., Bethesda, Md. - T. E. Shea, Jr. et al.)

(Not Restricted)

Viscosity Studies on Tobacco Mosaic Virus in Solution. Several physico-chemical methods have been used to demonstrate the tendency of the rod-like particles of tobacco mosaic virus to aggregate. Double boundaries in the ultra-centrifuge, high values of intrinsic viscosity, and finally direct measurements of electron micrographs furnish conclusive proof that many preparations of purified tobacco mosaic virus contain particles having lengths greater than that ascribed to the fundamental unit.

Viscosity measurements, because of their extreme dependence on the asymmetry of molecules, are ideally suited for the investigation of this phenomenon which invariably takes the form of end-to-end aggregation and thus larger and larger axial ratios. The viscosity data obtained on highly aggregated material indicated the existence of the opposite reaction in which the associated particles break up into smaller units approaching that believed to be the fundamental unit.

Electron micrographs have yielded supporting evidence to the interpretation of the viscosity studies. Rapidly decreasing values of η_{sp}/C at very low concentrations of virus were observed. An equilibrium between monomer and dimer has been proposed as a possible interpretation for the experimental results. (NM 000 002, Rep. No. 1, 29 May '47, Nav. Med. Res. Inst., Bethesda, Md. - H. K. Schachman)

(Not Restricted)

A Procedure for Preparing Rats' Teeth for Examination for Caries. In this study a procedure for preparing and examining the teeth of white and cotton rats for the incidence and extent of dental caries is described. A simplified technic of grinding, diagnosing, scoring, and recording is outlined. A photographic apparatus designed at the Institute is illustrated as a means of preserving in color pictures the incidence and extent of dental caries in the various ground planes of the teeth. (Proj. X-418, Rep. No. 5, 17 July '47, Nav. Med. Res. Inst., Bethesda, Md. - C. A. Schlack et al.)

(Not Restricted)

A Laboratory Evaluation of "Chlorocel," an Electrolytic Sodium-Hypochlorite-Producing Unit. The importance of chlorination as a water purification method has long been recognized. Hypochlorite salts are usually employed for chlorination, although the use of hypochlorite involves problems of procurement, storage, and deterioration.

An electrolytic hypochlorite-producing unit, "Chlorocel," designed and manufactured by Paterson Engineering Co., Ltd., Kingsway, London, England, was laboratory-tested with respect to hypochlorite production in relation to varying salt concentrations (including sea water), rates of flow, recirculation of electrolyte, amperage, and voltage. Hypochlorite production was found to be directly

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proportional to amperage, inversely proportional to rate of flow, and, within certain limits, to bear a linear relationship to salt concentration.

The tests indicated that the "Chlorocel" unit may be considerably simplified from operational, procurement, and maintenance points of view. (NM 011 014, Rep. No. 1, 30 July '47, Nav. Med. Res. Inst., Bethesda, Md. - W. V. Consolazio and H. J. Mark)

(Not Restricted)

Studies of the Efficiency of Shipboard Evaporators in Producing Potable Water and the Pollution Hazard of Using Open Sea Water Aboard Ships. Studies were carried out in the Long Beach area, California, during April and May 1947 to obtain information concerning (a) the efficiency of various types of shipboard evaporators in furnishing potable water from polluted sources and, (b) the distance at which pollution from a polluted harbor could be detected in the open sea and the pollution hazard of using salt water aboard ships on the high seas.

Four hundred and twenty-eight samples of water taken during the investigations were subjected to laboratory analyses in accordance with A.P.H.A. Standard Methods.

Results obtained from the examination of specimens taken from seven different shipboard distilling plants every four hours during 24-hour continuous operation in polluted areas showed that (a) all samples of fresh water were free of coliform bacteria, (b) the majority of salinity cell readings tabulated were below 0.25 gr/gal. and, (c) the temperatures reached in the various types of evaporators studied were effective in destroying coliform bacteria.

During the studies on open sea water, coliform organisms were detected at a maximum distance of two and one-half miles from the San Pedro sea wall and were found also in samples of sea water taken overboard from ships on the high seas proceeding at various speeds, distances, and formations. In no specimen, however, did the coliform density exceed 39/100 ml. and none indicated excessive pollution.

It was concluded that (a) potable, fresh water was produced by all 7 evaporator units studied, even from heavily polluted water, (b) it is desirable to expose polluted water at some point in the distillation system to a temperature adequate to destroy the viability of pathogenic organisms, (c) no significant pollution hazard would obtain in using open sea water aboard ships for normal purposes other than those connected with messing facilities, and (d) in the presence of an epidemic of dysentery or other diarrheal disease and if fecal material from patients or carriers of the causative organisms were being discharged untreated into open sea water, the use of such water aboard ships should be restricted to those purposes in which there would be no contact with personnel. (Proj. X-756, Report No. 4, 16 Aug. '47, Nav. Med. Rest. Inst., Bethesda, Md. - L. A. Barnes et al.)

(Restricted)

A "Water Suit" Suggested for Protection Against Fire and Intense Heat. Although the treatment of clothing materials with flameproofing compounds increases resistance against flash burns and afterglow, it offers no protection against appreciable exposure to direct flame. Most fabrics burn and disintegrate after an exposure of about one minute to direct flame, whether they are flameproofed or not.

Tests were made to determine the degree of protection against burning of fabrics (Byrd cloth) by direct flame afforded by (a) smothering of the flame with CO_2 diffusing through the pores of the fabrics, and (b) by "waterjacketing." It was found that fabrics in contact with a flame from a Bunsen burner, temperature from 1000° to 1500° C., burned in 42 seconds when tested dry and after from 80 to 160 seconds when tested wet.

The fabric, in the form of a flat bag, however, containing water which could be replenished as it evaporated, remained unaffected by flame for a period of at least 165 minutes. This suggests the desirability of constructing and testing a water suit to be worn over heavy underclothing, incorporating a suitable helmet, as a means of protection against extended contact with direct flame. (NM 007 033, Rep. No. 1, 2 Sept. '47, Nav. Med. Res. Inst., Bethesda, Md. - C. P. Yaglou et al.)

NOTE: Those interested in seeing copies of the complete reports should address their request to the research activity from which the report originates. Reference may be made to those reports marked "Not Restricted" in the same way as to published articles, noting authors, title, source, date, project number, and report number. No part of the content of RESTRICTED reports may be published, reproduced, or referred to in articles for publication without permission obtained through the Bureau of Medicine and Surgery.

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(Not Restricted)

List of Naval Medical Activities under Management Control of the Bureau of Medicine and Surgery:

NAVAL HOSPITALS (CONTINENTAL)

Chelsea, Mass.
Newport, R.I.
Portsmouth, N.H.
Brooklyn, N.Y.
St. Albans, N.Y.
Philadelphia, Pa.
Annapolis, Md.
Bethesda, Md.
Quantico, Va.
New River, N.C.
Portsmouth, Va.
Charleston, S.C.
Dublin, Ga.
Jacksonville, Fla.
Parris Island, S.C.
Key West, Fla.
Corpus Christi, Tex.
Houston, Tex.
Memphis, Tenn.
Pensacola, Fla.
Great Lakes, Ill.
Corona, Cal.
Long Beach, Cal.
San Diego, Cal.
Santa Margarita Ranch, Cal.
Mare Island, Cal.
Oakland, Cal.
Puget Sound, Wash.

NAVAL HOSPITALS (EXTRACONTINENTAL)

Trinidad, B.W.I. (Maintenance)
Coco Solo, Canal Zone
Guantanamo, Cuba
Aiea, T. H.
Guam, M. I.

NAVAL DISPENSARIES

Navy Department, Washington, D. C.
50 Fell Street, San Francisco, Cal.

NAVAL RESEARCH

USN Medical Research Laboratory
Submarine Base, New London, Conn.

USN Medical Field Research Laboratory
Camp Lejeune, N. C.

USN Medical Research Unit #1
Berkeley, Calif.

USN Medical Research Unit #3
Cairo, Egypt

USN MEDICAL CENTER, GUAM, M.I.

Naval Hospital

Guam Memorial Hospital
School of Medical Practitioners
School of Dental Practitioners
School of Nursing

NAVAL DENTAL CLINICS

Brooklyn, N. Y.
Pearl Harbor, T.H.
Guam, M. I.

(continued on following page)

(Not Restricted)

NAVAL MEDICAL SUPPLY DEPOTS

Brooklyn, N. Y.
Oakland, Cal.
Guam, M. I.
Pearl Harbor, T. H.

NAVAL HOSPITAL CORPS SCHOOLS

Great Lakes, Ill. San Diego, Calif. Portsmouth, Va.

NATIONAL NAVAL MEDICAL CENTER, BETHESDA, MD.

Naval Hospital
Naval Medical School
Naval Dental School
Naval Medical Research Institute
Naval School of Hospital Administration

U. S. NAVAL MEDICAL UNITS

1. U.S. Public Health Service Hospital
Fort Worth, Texas
2. Georgia Warm Springs Foundation
Warm Springs, Ga.

U. S. NAVAL UNITS AT ARMY COMMANDS

U. S. Navy Training Unit
Army-Navy Medical Equipment Maintenance
St. Louis, Mo.
Biological Division, Chemical Corps
Camp Detrick, Frederick, Md.

PROCUREMENT OFFICE

Army-Navy Medical Procurement Office & Agency
84 Sands Street
Brooklyn 1, New York

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(Restricted)

Anticipated Heavy Losses of Enlisted Hospital Corpsmen During the Fiscal Year 1948: The following memorandum from the Acting Chief of BuMed has been sent to all district and staff medical officers:

1. The overall losses to the enlisted strength of the Hospital Corps due to unrenewed expiring enlistments and all other discharges during the Fiscal Year 1 July 1947 to 30 June 1948, based on the normal attrition percentage and 65 per cent of expiring enlistments, were initially calculated to range from a total of 268 in July, 722 in November, 1046 in December 1947, 1124 in January, and from 798 in February to 1057 in June 1948, to make a grand total net loss of Hospital Corpsmen from all sea and shore activities of approximately 8,200 men. The total strength of the Hospital Corps as of 20 September 1947 was approximately 19,300 men, including 350 Waves.

(Restricted)

2. The effect of AlNav 197-47 authorizing the discharge of all men two months in advance of normal expiration of enlistment beginning 1 Oct 1947, will have the effect of accelerating the anticipated losses to the Hospital Corps proportionately.

3. Under initial calculations, with recruitment quotas 100 per cent fulfilled, the strength of the Hospital Corps would drop to approximately 17,600 Hospital Corpsmen by 30 June 1948. To date recruitment quotas have been but approximately 50 per cent filled. Should this continue, the strength of the Hospital Corps on 30 June 1948 will be approximately 14,600 men.

4. According to the latest information available, budgetary allowances for Fiscal Year 1948 provide for a total enlisted strength of the Hospital Corps on 30 June 1948 of 15,575 plus 675 for the care of Veterans Administration patients.

5. These calculations contemplate an overall reenlistment percentage of 35 per cent. Hospital Corps reenlistments since 1 July 1946 have averaged 35 per cent. Reenlistments during July and August have jumped to an average of 51 per cent. For the first three weeks in September they have been reported as 36 per cent, 67 per cent, and 47 per cent respectively.

6. It is anticipated, calculating the initial effects of AlNav 197-47, that the Hospital Corps will lose approximately 2000 men during the month of October 1947. This heavy loss includes the formerly expected losses from unrenewed expiring enlistments occurring in October, November, and December, 1947.

7. The losses for the remainder of the year should occur as originally expected, but two months in advance. The actual loss of services, however, will remain as originally calculated, since terminal leave has been cancelled in lieu of cash payment.

8. Every effort will be made to distribute Hospital Corpsmen between Naval Districts and Fleet Commands to equalize allowance requirements, throughout the year. It is believed that the Weekly Personnel Reports, NavMed 590, received regularly will provide the necessary information to carry out this program successfully. Should the strength of the Hospital Corps drop to 14,600, it will be necessary for all activities currently in commission to operate on approximately 75 per cent of allowance. It is not believed the percentage of losses will vary greatly among Administrative Commands.

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(Not Restricted)

Procurement and Precautions in the Use of Sodium Monofluoracetate (1080), Rodenticide: Circular Letter 47-140 on page 33 of this issue contains important information on this drug, which is highly effective as a rodenticide but is also deadly poisonous to human beings.

(Not Restricted)

Advanced Training of Medical Officers for Staff Assignments: One place in the Industrial College of the Armed Forces and one place in the Armed Forces Staff College, for courses beginning in 1948, have been assigned to the Bureau of Medicine and Surgery. These courses, as described below, are available to medical officers of the rank of commander and captain. Requests for these assignments are desired at this time and must include an agreement not to resign during the course and to remain in the Navy for a period of three years upon completion of the course. Graduates may expect duty in the Medical Logistics System and various staff assignments.

Industrial College of the Armed Forces, Washington, D. C.

Course begins 2 September 1948, and is of 10 months' duration.

Mission: (a) To train officers of the Armed Forces of the United States of America for duties involving all aspects of mobilization of the national economy, economic warfare, procurement planning, and procurement.

(b) To conduct studies in all aspects of mobilization of the national economy, procurement planning, procurement, economic warfare, and economic war potential of foreign nations.

(c) To evaluate the economic war potential of foreign nations.

(d) To promote among the members of the Armed Forces and in the nation at large an understanding of the ever-changing complex problems of mobilizing and administering the national economy for war.

(e) To foster a close relationship between the Armed Forces and civilian engineering, scientific, educational, and industrial groups in the study of social, political, and economic impacts of war.

Armed Forces Staff College, Norfolk, Va.

Course begins 2 February 1948, and is of five months' duration.

Mission: To train selected officers of the Armed Forces in Joint Operations. Quarters are available to officers assigned to this course.

(Professional Div., BuMed)

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(Not Restricted)

Graduate Course in Tropical Medicine: The Bureau of Medicine and Surgery announces the availability of a full-time course in tropical medicine of from 8 to 10 weeks at the New York University, College of Medicine, beginning in April 1948. The course will consist of extensive instruction, both from the clinical and laboratory aspects, in protozoology, helminthology, entomology, mycology, pathology of tropical diseases, viral, rickettsial, and spirochetal infections, enteric bacteriology, tropical ophthalmology and dermatology, nutrition and physiology, and hematology.

(Not Restricted)

No service agreement is required for this course of instruction. The quota for the Bureau of Medicine and Surgery is two. Requests are desired from medical officers of the regular Navy who desire to specialize in this field. (Professional Div., BuMed)

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(Not Restricted)

The Present Status of Graduate Medical Training: The Bureau of Medicine and Surgery has approximately 210 residencies in Naval hospitals and 120 courses fellowships, and residencies in civilian institutions. The majority of the places for training in Naval hospitals and civilian institutions are filled at the present time, but the following residencies and fellowships are still available:

Anesthesiology - Four places in civilian institutions. The shortage of medical officers interested in this specialty persists.

Neurology - One vacancy.

Obstetrics and Gynecology - A few vacancies exist in Naval hospitals. It is hoped that additional approved residencies may be established prior to 1 July 1948.

Ophthalmology - Several residencies in Naval hospitals and most of these are integrated with courses at civilian institutions.

Otolaryngology - Many residencies in Naval hospitals.

Orthopedic Surgery - Four residencies in Naval hospitals.

Pathology - Several residencies in Naval hospitals and one residency in a civilian institution.

Plastic Surgery - There is one vacancy at the first-year level for one who has had previous experience in Surgery. (An additional vacancy will occur 1 October 1948.)

Proctology - One residency in a Naval hospital.

Radiology - Ten residencies in Naval hospitals.

Urology - There are several residencies in Naval hospitals.

Physical Medicine - Three vacancies in civilian institutions.

The status of other residencies and fellowships is as follows:

Dermatology and Syphilology - No vacancies until 1 January 1948.

Internal Medicine (including subspecialties). Few vacancies after 1 January 1948. All places in civilian institutions are filled until 1 May 1948.

Neurological Surgery - No vacancies until 1 July 1948.

Pediatrics - It is contemplated that additional approved residencies in Naval hospitals may be established by 1 July 1948. It is hoped that places in civilian institutions will also be obtained by that date.

Psychiatry - Additional residencies have been obtained at St. Elizabeths Hospital, Washington, D. C. Courses and residencies available March and April 1948.

Thoracic Surgery - No vacancies until 1 July 1948. At least two years of previous experience in general surgery are required. Residencies in this specialty are normally of two years' duration. The Navy needs additional medical officer trained in this field.

(Not Restricted)

The following courses are filled until after 1 July 1948: Public Health, Preventive Medicine, Industrial Medicine, Medical Statistics, Tropical Medicine, Photofluorographic Interpretation, and Electroencephalography.

In addition to residencies in Naval hospitals, training in many other fields is available in Naval activities. There are vacancies in the next class in Aviation Medicine beginning 5 January 1948. Four medical officers interested in special assignments, the course in Submarine Medicine, which emphasizes applied physiology, provides excellent basic preparation. (Professional Div., BuMed)

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(Not Restricted)

Reorganization of the Volunteer Reserve Component of the Medical Department of the Navy: The Reserve Component of the Medical Department of the Navy is comprised of the Organized Reserve and the Volunteer Reserve.

The Organized Reserve may be defined as a body of trained officers and enlisted personnel who are obligated to attend drill periods and training cruises for which they receive remuneration.

The Volunteer Reserve is a body of qualified officers and enlisted personnel who are on a purely voluntary basis. They are not called to active duty except in time of national emergency or by their own request, and receive training only when they request it and as funds are available for training purposes.

The supervision and administration of the Reserve Component of the Medical Department of the Navy is the responsibility of the Naval district commandants and the district medical officers, assisted (in each Naval district) by a Reserve medical officer on full-time active duty who will be responsible for the coordination and implementation of the Reserve Program.

Upon the recommendation of the Bureau of Medicine and Surgery, the Bureau of Naval Personnel has granted authority for the Volunteer Reserve Component of the Medical Department of the Navy to be administered separately and maintained independently of the Organized Reserve and that all the constituent groups of the Medical Department Volunteer Reserve (inactive), be organized in VOLUNTEER MEDICAL DIVISIONS.

The mission of the Volunteer Reserve Component of the Medical Department of the Navy is to provide an adequate Reserve force of Reserve medical officers, Reserve Medical Service Corps officers, Reserve Nurse Corps officers, and Reserve enlisted personnel of allied ratings, who will be available for mobilization in the event of a national emergency.

The Volunteer Medical Divisions, containing all branches of Volunteer Reserve Medical Department personnel, may be considered as personnel pools from which, in a national emergency, personnel could be ordered to active duty individually or in teams and could be used intact for assignments to Naval hospitals, base hospitals, etc., to meet the needs of the Naval establishment.

(Not Restricted)

Quotas have been established for the various Naval districts, and Volunteer Medical Divisions will be organized geographically to accommodate the largest number of personnel. Where possible, these divisions will be established at medical centers and educational institutions.

The Volunteer Medical Divisions will be under the direction of a Reserve medical officer (inactive), with a rank not below that of captain. He will be assisted by an executive officer (inactive), and such Reserve Medical Service Corps personnel as may be considered necessary to accomplish his mission.

A Volunteer Medical Division complement is as follows:

Volunteer Reserve medical officers	75
Volunteer Reserve Medical Service Corps officers	15
Volunteer Reserve Nurse Corps officers	50
Volunteer Reserve Hospital Corpsmen (enlisted)	250

Volunteer Reserve medical officers and Medical Service Corps officers will be assigned in accordance with their special qualifications. Numerous specialty billets have been created for this purpose.

As provided in Public Law 36 of 16 April 1947, Reserve nurses automatically become part of the Volunteer Reserve and will be assigned to Medical Divisions nearest their homes.

The organizational plan of the Volunteer Medical Divisions makes possible closer cooperation between its various constituent groups of Medical Department personnel while in an inactive-duty status, thereby permitting maximum attention to be given to training programs and to the professional qualifications attained during the period of inactive duty. (Personnel Div., BuMed)

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(Not Restricted)

Naval Medical School Guest Lecture, "The Relation of Enzymes to Life."

The second of the 1947-48 guest lectures sponsored by the U. S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland, is scheduled for Friday evening, 31 October 1947 at 8:15.

The guest speaker, Doctor James B. Sumner, Nobel Prize winner and Professor of Biochemistry, Cornell University, will present "The Relation of Enzymes to Life."

Medical Department officers of the Army and Navy, officers of the U. S. Public Health Service, doctors and dentists of the Veterans Administration, and civilian doctors and dentists who may be interested are invited to attend. (Nav. Med. School, Bethesda, Md.)

(Not Restricted)

Manuals and Publications for Dental Departments: The Bureau of Medicine and Surgery has received many requests from dental activities for the manuals and publications listed on page 28 of Bumed News Letter, Volume 10, Number 5, dated 29 August 1947. The following will facilitate the procurement of such of these manuals and publications as are required:

	Item	How Requested	Obtained From
a.	U. S. Navy Regulations	Letter	BuPers
b.	Navy Department General Orders	Letter	BuMed
c.	Manual of the Medical Department, U. S. Navy	Letter	BuMed
d.	Army-Navy Catalog of Medical Material	NAVMED-4	NavMedSupDepot
e.	Bureau of Naval Personnel Manual	Letter	BuPers
f.	Naval Courts and Boards	Letter	BuPers
g.	Navy Department Bulletin, All Ships and Stations Letters	Memorandum request	Distributed by CO
h.	Navy Department Bulletin, (current issues)	Memorandum request	Distributed by CO
i.	Handbook of the Hospital Corps, U. S. Navy	NAVMED-4	NavMedSupDepot
j.	Handbook for Dental Technologists, (General)	Letter	U. S. Naval Dental School, NNMC, Bethesda, Md.
k.	Handbook for Dental Technologists, (Prosthetic)	Letter	U. S. Naval Dental School, NNMC, Bethesda, Md.
l.	Bulletin Bureau of Medicine and Surgery Circular Letters	Letter	BuMed
m.	Bumed News Letters (current copies)	Letter	BuMed
n.	Bumed News Letters (past issues, binders and indexes)	Letter	East Coast Naval Publications Distribution Center, Naval Supply Depot, Norfolk

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	Item	How Requested	Obtained From
o.	Manual for Stenographers and Typists	Letter	Records & Publications Div., EXOS, Navy Dept.
p.	Register of Commissioned and Warrant Officers, USN & USMC		Distributed by the CO or obtained at personal expense from Government Printing Office
q.	Register of Commissioned and Warrant Officers, USNR		
r.	Files containing pertinent current AlNavs, Circular Letters, etc.		Accumulated as received
s.	Files containing local orders, memorandums, etc.		Accumulated as received

Requests for office copies of publications should contain a statement that they are for official use in the Dental Department of the ship or station and that changes and revisions should be addressed thereto. (Dental Div., BuMed)

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Circular Letter 47-132 23 September 1947 (Not Restricted)

To: All Holders of the Manual of the Medical Department

Subj: Changes in the Manual of the Medical Department

Encl: 1. (HW) Advance Change 3-2, MMD.

This letter from the Acting Chief of BuMed contains changes in the Manual of the Medical Department. These changes constitute Advance Change 3-2, a record of which is to be made on the "Record of Changes" page in the manual, and the individual changes are to be inserted in the proper places in the text of the manual.

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Circular Letter 47-133 29 September 1937 (Not Restricted)

To: All Ships and Stations

Subj: Medical Service Corps Officers, Reporting of on NavMed HC-3 and HC-4.

Ref: (a) Par. 517, Manual of the Medical Department.
(b) Par. 518, Manual of the Medical Department.

1. Medical Service Corps Officers shall be reported on forms NavMed HC-3 and HC-4 in the same manner as Hospital Corps Officers.

2. Revisions to references (a) and (b) will be distributed at a later date.

--BuMed. H. L. Pugh

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Circular Letter 47-134 2 October 1947 (Not Restricted)

To: MedOfsCom. NavHosps

Subj: Form NavMed -569, Register No. 3 - Recapitulation of General Ledger Accounts

This letter from the Acting Chief of BuMed requests that addressees having over one year's supply of subject form forward the excess stock to the nearest district publications and printing office for redistribution.

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Circular Letter 47-135 3 October 1947 (Not Restricted)

To: Medical Officers in Command, All Naval Hospitals

Subj: Training Program for Naval Reserve Hospital Corpsmen - Annual Training Cruise.

Ref: (a) BuMed CirLtr No. 47-31 dtd 13 Mar 1947 (Training Program for Naval Reserve Hospital Corpsmen).

1. Reference (a) outlined the armory training program for enlisted Hospital Corpsmen of the Inactive Naval Reserve. Pursuant to the fulfillment of this program an annual two-weeks training cruise is hereby authorized at all naval hospitals.

2. Personnel authorized by competent authority to report for this training will be given practical instruction in the several wards, clinics and administrative divisions of the hospital appropriate to their ratings and technical specialties. Care and attention should be exercised to see that trainees receive experience and instruction pertinent to the basic duties required of Hospital Corpsmen.

3. Personnel assigned to naval hospitals for subject training shall be reported on lines 103 and 104, Section E, Monthly Ration Record, NavMed HF-36. If other enlisted personnel, in addition to the above, are included on these lines, an analysis shall be made under "Remarks" on the Monthly Ration Record, indicating separately the number of subsistence days applicable to the subject personnel. An analysis of the above lines will be required from those hospitals having enlisted personnel of the Hospital Corps attached to the hospital for special instructions by order of the Navy Department. When subject personnel are admitted to the sick list, they shall be reported on the applicable line in Section A of the Monthly Ration Record in accordance with existing instructions.

--BuMed. H. L. Pugh

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Circular Letter 47-136 7 October 1947 (Not Restricted)

To: All Ships and Stations

Subj: Binders for Former BuMed Section, Catalog of Navy Material; Return of

This letter from the Acting Chief of BuMed directs that all binders for the now obsolete Catalog of Navy Material be returned to the Naval Medical Supply Depot, Pearl and Sands Streets, Brooklyn 1, New York. The catalog pages are to be removed and disposed of. Binders that are not complete or are badly damaged are not to be returned. Binders are to be returned by mail if the package does not weigh over 4 pounds. All packages are to be marked "Returned

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Catalog Binders" and the number of binders contained shall be stated on the package.

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Circular Letter 47-137 7 October 1947 (Not Restricted)

To: All Ships and Stations

Subj: Catalog of Hospital Corps Schools and Courses - Revised 1944 (NavMed 367), Modification of.

Ref: (a) BuPers-BuMed Jnt AS&S Ltr. No. 47 815 dtd 29 Aug 1947 (Postwar Program for Night Vision Testing of Naval Personnel).

1. Pursuant to the instructions contained in reference (a) the curriculum for the Intermediate (Class "B") Course of Instruction for Hospital Corpsmen listed in the Catalog of Hospital Corps Schools and Courses, Revised 1944 (NavMed 367), is hereby modified to include a course of instruction in night vision testing of naval personnel.

2. This instruction will be included as a part of the instruction in "Minor Surgery and First Aid, Advanced," subject "MSFA-5", listed in subject catalog on pages 30 and 65.

3. One hour of theoretical and two hours of practical instruction are considered basically sufficient to provide students with the essentials for testing personnel for night vision by the Radium Plaque Adaptometer.

4. No special designator will be used to indicate Hospital Corpsmen who have undergone this instruction. All men completing the Intermediate Course of Instruction for Hospital Corpsmen subsequent to 1 January 1948 will be considered qualified as instructors or operators in night vision testing of personnel.

--BuMed. H. L. Pugh

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Circular Letter 47-138 9 October 1947 (Not Restricted)

To: Ships and Stations Having Medical or Dental Officers Aboard

Subj: Advance Change, ManMedDept.

Encl: 1. (HW) Changes in Manual of the Medical Department deemed necessary to effectuate the provisions of Public Law 284, 79th Congress, 1st Session.

(Not Restricted)

This letter from the Acting Chief of BuMed is accompanied by an enclosure covering changes in the Manual of the Medical Department which have been approved by the Secretary of the Navy. The actual insertion of these changes in the manual in accordance with the enclosure is not to be effected until after the printed pages, now about ready for distribution, which show a previous change (change number 2) have been received and inserted.

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Circular Letter 47-139 9 October 1947 (Not Restricted)

To: All Medical Department Activities, Continental, U. S.

Subj: Gas and Gas Cylinders

Ref: (a) BuMed Circular Letter 47-73 dated 12 June 1947.
(b) BuSandA Ltr L7/2/NY/NS (RSU-lm dated 17 April 1947.

Encl:* 1. (HW) Copy of reference (b)

1. Reference (a) established the procedure for procurement of gas and gas cylinders by Medical Department activities. Those items carried in General Stores Section of the Catalog of Navy Material under the cognizance of BuSandA are to be obtained from that source.

2. Since procurement of cylinders listed in the General Stores Section of the Catalog of Navy Material is under the direct cognizance of BuSandA, it is necessary that Medical Department shore activities submit to local Major Supply Activities their requirements in accordance with Paragraph 3 of reference (b). Paragraph 2 of reference (b) established the method of determining requirements and directs establishment of pools to meet station operational requirements.

3. Accordingly, reference (b) is forwarded as enclosure (1) for compliance.

--BuMed. H. L. Pugh

*Because of space limitations, a copy of reference (b) (having to do with the operation of Cylinder Pools for compressed and liquified gases) is not reprinted in the Bumed News Letter.

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Circular Letter 47-140 10 October 1947 (Not Restricted)

To: All Ships and Stations

Subj: Sodium Monofluoracetate (1080), Rodenticide - Procurement and Precautions in the Use of

(Not Restricted)

Refs: (a) Bumed News Letter, Vol. 6, No. 9, dtd 26 Oct 1945
(b) NavMed 518 - Manual on Rat Control, American Mainland and Pacific Regions, dtd 1944
(c) War Department Technical Manual, TM5-632, Insect and Rodent Control, Repairs and Utilities, dtd Oct 1945
(d) Bureau of Supplies and Accounts Monthly News Letter dtd Jan 1947, page 15
(e) Bureau of Supplies and Accounts, General Stores Catalog Bulletin, Number Thirty-Two, dtd July 1947
(f) Par. 1522, Manual of the Medical Department, 1945, Change No. 1

1. Sodium monofluoracetate (1080), a highly toxic rodenticide developed during the war, has become a valuable poison in the control of rodents on board ships and at naval establishments in the field. With the removal of wartime restrictions, this material is being given wide publicity by both governmental and civilian agencies vitally concerned with combating the ever present rodent menace. To obviate any untoward mishap among naval personnel and to allay any false impressions of the toxicity of this rodenticide, the following data are presented for the information and guidance of all naval personnel engaging in rodent control operations where the use of sodium monofluoracetate is contemplated. It is emphasized, however, that this material will be released by BuMed only for use under the strict supervision of trained and qualified personnel.

A. Properties: Sodium monofluoracetate is a fluffy, white powder, highly soluble in water. It has a faint acetate odor and a mild acid-salty taste. DO NOT TRY TO CORROBORATE THESE PROPERTIES. It is a stable compound chemically and does not deteriorate when mixed with bait or water. It is not corrosive to metals in general. It is relatively insoluble in organic solvents and vegetable fats and oils. Upon exposure to air, the dry, pure powder rapidly takes up moisture from the atmosphere and may become sticky (hygroscopic).

B. Toxicity: Sodium monofluoracetate is a deadly poison. There is no known antidote. The lethal dose of this poison for man has not been definitely established. However, by comparison with the lethal doses for various animals and birds as shown in the table below, it should be assumed that small doses could be fatal to man.

Animal or Bird	Amount of poison in milligrams per kilogram of body weight	Percent killed
Albino rat	5-7	50
Norway rat, wild (Rattus norvegicus)	3-7	50
Roof rat (R. rattus subsp.)	1-4	50
Cat	0.35-0.5	50
Dog	0.1 -0.2	50

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Animal or Bird	Amount of poison in milligrams per kilogram of body weight	Percent killed
Goat	0.7	50
Pig	0.3	50
Horse	1	50
Monkey (Rhesus)	5-7.5	50
Chicken (Rhode Island Red hens)	6-7	50
Mourning Dove (Zenaidura macroura)	10	33
English Sparrow (Passer domesticus)	2.7	100

This poison is rapidly absorbed by the gastro-intestinal tract, exerting its action on the heart muscle (myocardium) and central nervous system in monkeys and presumably in man.

C. First Aid: In case of sodium monofluoracetate poisoning, the patient should be kept quiet. Induce vomiting immediately by sticking finger down throat or by use of an emetic. Then give a dose of salts or other cathartic as a purge. CALL A MEDICAL OFFICER IMMEDIATELY. The attention of all Medical Department personnel is invited to reference (a).

D. Recommended procedure for handling sodium monofluoracetate:

(1) Do not breathe the dust or swallow any of the poison. Do not smoke or eat while handling the poison. Keep personal contact with the rodenticide at a minimum.

(2) Keep all equipment and supplies plainly labeled. Utensils and equipment must be thoroughly washed after use and not employed for any other purpose.

(3) Rubber gloves should be worn while mixing and distributing poison bait. Wash hands thoroughly with soap and water upon completion of these operations.

(4) All materials should be kept under lock and key in such a manner that irresponsible persons or domestic animals will be unable to obtain access to them.

(5) Clothing worn during the work day should not be worn during meals or in transit to and from work.

E. Methods for the use of sodium monofluoracetate in the control of rats and mice:

(1) In poisoned water use 1/2 ounce of the poison per gallon of water.

(2) In food baits use 1 ounce of the poison in 25 pounds of bait.

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(3) Do not increase these proportions. Hazards to other animals are lessened by using the recommended concentrations.

(4) If rats and mice are not controlled when the recommended concentration is used, the trouble lies with the bait or the manner in which it is applied, not with the poison. Rats and mice are cautious in the selection of baits, and control methods must be adapted to local conditions.

(5) Remove all domestic animals, poultry, and pets from the area to be poisoned and keep them out for at least five days. Remove and destroy by burning or burying three feet below ground all surface kill of rats and mice before releasing animals and poultry which might feed on and be poisoned by them. This hazard of secondary poisoning is to be particularly avoided.

(6) Place baits carefully. Baits may be placed adjacent to burrows and along runways, preferably behind boards or boxes in specially prepared bait stations and other places frequented by rats and mice, and out of reach of irresponsible persons, all animals and poultry.

(7) The poisoned water may be placed in 3/4 ounce paper cups, or fountain type chicken feeders and similarly distributed. It is advisable to place these types of bait containers on some absorbent material such as a blotter which will soak up the poison in the event it is overturned, thereby preventing contamination of the surrounding area. This is very important when poisoned liquids are used around food supplies.

(8) Do not expose baits or water containing sodium monofluoracetate under any condition that might result in the contamination of food supplies.

(9) At the conclusion of operations, remove and burn or bury any uneaten bait, all water and bait containers, and contaminated blotters.

(10) For further information on poisoning methods, consult references (b) and (c). Reference (d) gives a resume of an excellently organized and executed rat and pest control program conducted at an east coast naval facility.

F. Control of field rodents:

(1) Field rodents in general are much more susceptible to sodium monofluoracetate poisoning than are rats and mice. Effective control of field rodents results from the use of from 1 to 2 ounces of this poison per 100 pounds of bait.

(2) Successful field rodent control is dependent upon the species of rodent and the local conditions. The bait and the method of application must be carefully adapted to the individual project.

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2. Procurement: Sodium monofluoracetate is stocked in one-ounce cans, eight to the carton, by Naval Supply Depots, Norfolk, Va. and Oakland, Calif. The unit of issue is one carton. It is listed in the General Stores Section of the Catalog of Navy Material as "Sodium Monofluoracetate (Rodenticide), Stock Number 51-S-3339." The cans are labeled as follows: "Rodenticide, Sodium Monofluoracetate, POISON, 1 ounce." The word "POISON" together with a skull and crossbones appears in waterfast red paint. All requisitions for this material must be approved by the Bureau of Medicine and Surgery prior to issue in order to safeguard the supply and to assure that it is issued only to qualified and trained personnel. Consult reference (e). At the present time there are approximately 50 Hospital Corps officers assigned to Naval Districts and major activities who are qualified and have been fully trained in the use of this rodenticide. As this training program continues, it is anticipated that trained men will be available to all major commands and large activities. During the interim, the personnel presently available should be utilized on an area-wide basis. Attention is invited to reference (f).

--BuMed. H. L. Pugh

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Circular Letter 47-141 10 October 1947 (Not Restricted)

To: District Medical Officers, all Naval Districts (Less 10, 14, 15, 17) and Potomac River Naval Command and MOinC; all Continental Naval Hospitals.

Subj: Reorganization of Volunteer Reserve Component of the Medical Department of the Navy.

Refs: (a) NRMAL #36-47.
(b) BuMed ltr BUMED-3422-mpd, dtd 19 Nov 1946.

Encl: (A) (HW) Quarterly Report - Sample of.

1. The Bureau of Naval Personnel approved the recommendations of this Bureau that the Volunteer Reserve Component of the Medical Corps shall be organized in Medical Divisions in accordance with ref (a).

2. It is the desire of the Bureau of Medicine and Surgery that District Medical Representatives immediately initiate appropriate action to accomplish the reorganization of the Medical Reserve Corps and all Regular Naval Medical officers should be enjoined to make every effort to assist in accomplishing an efficient and well-planned Reserve Component of the Medical Department of the Navy.

3. To facilitate the organization of Medical Divisions, it is suggested that the now-existing Medical Specialists Units be disbanded and Medical Divisions be

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established in accordance with the provisions of Article H-1307, BuPers Manual. Also, that Organizers of former Medical Specialists Units, wherever possible, be utilized as Medical Officers in Command of Medical Divisions and that medical officers of appropriate rank, formerly members of Specialists Units be encouraged to assume the responsibilities of Medical Officer in Command of Medical Divisions as new Divisions are needed.

Likewise, that in localities where no Medical Specialists Units were organized, Reserve medical officers of appropriate rank and qualifications be contacted and enjoined to request appointment as Medical Officer in Command of a Medical Division.

District Medical Representatives should determine whether there is sufficient Naval medical personnel available to establish a Medical Division in any particular locality.

4. In the procurement of personnel and the administration of the Reserve Medical Program, the Medical Officer in Command of a Medical Division should be assisted by an Executive Medical Officer (inactive), and such Reserve Medical Service Corps personnel as may be deemed necessary to the accomplishment of his mission.

5. In amplification of Article C, para (3) of ref (a), it may be stated that in order to have the complement of a Medical Division a well-balanced organization, it is suggested that the professional qualifications be the determining factor in the assignment, so that each Medical Division may have a diversification of all specialties.

(1) Fifty (50) medical officers of the complement are limited numerically as to assignment in their specialties, so that officers of other specialty groups should be assigned in practical proportions in order to maintain a well-planned Division.

(2) Medical officers certified for Aviation Medicine, Submarine and Amphibious Medicine will be assigned under their respective classification, irrespective of specialty practiced.

(3) Medical officers of high professional qualification and recognized in civilian life as Consultants in a specialty, may be assigned as Consultants.

(4) Medical officers with a P.H. degree and classified as Public Health could be assigned to Preventive Medicine or V-D Control.

(5) Under the Naval Medical Specialties group would be assigned medical officers who have had training in these definite specialties.

(6) Medical Allied Science officers should be assigned in accordance with the Organizational Plan as far as possible; however, should the HS or MSC

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officer have a specialty other than specified in the Plan, he may be assigned to a Medical Division, providing the authorized complement is not exceeded.

(7) Chief Warrant Officers and Warrant Officers may be assigned to a Medical Division in practicable numbers within the Hospital Corps group and shall be assigned duties in accordance with their qualifications.

(8) Should there occur a surplus in any classification above the stated complement, such surplus should be assigned to another Medical Division.

6. In connection with the foregoing, the Quarterly Report, ref (b), is cancelled and is to be superseded by instructions contained in encl (A). It is anticipated that a detailed report of Volunteer personnel may be eliminated as soon as Medical Divisions are established and become firm; at that point, only changes occurring during the quarter need be reported. Each District will be notified by separate correspondence relative to this change. The Quarterly Report of Organized Reserve medical officers shall be continued as modified by encl (A).

7. To supplement factual information on Reserve medical officers (inactive) the Bureau of Medicine and Surgery is mailing under separate cover, such questionnaires as have been submitted to this Bureau, which may be of aid in determining professional qualifications.

8. It is the intention of this Bureau to publicize the newly established Program in official BuMed publications, Naval Reserve publications, and through the medium of Medical Journals.

9. The Bureau of Medicine and Surgery cannot emphasize too strongly the necessity of accomplishing the activation of the Reserve Component of the Medical Department of the Navy, and will welcome and appreciate comment and recommendations relative to this Program.

--BuMed. M. D. Willcutts

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Circular Letter 47-142 10 October 1947 (Not Restricted)

To: District Medical Officers (except Tenth, Fourteenth, Fifteenth and Seventeenth)
Staff Medical Officers: PRNC; SRNC; CNATra; MarBaks, Quantico, Va.; MarCorpsCruitDepot, Parris Isl., S.C.; ComServSubordComLANT; ComServPAC.

Via: Commandants and Commanding General, Marine Barracks, Quantico, Va., and Marine Corps Recruit Depot, Parris Island, South Carolina.

Subj: General Instructions Relative to Submission of Weekly Combined Report of Enlisted Hospital Corps Personnel (Form NavMed-590) and Selection of Hospital Corps Enlisted Ratings for Transfer.

(Not Restricted)

Refs: (a) Paragraph 156, Manual of the Medical Dept., 1945.
(b) Paragraph 5136, Manual of the Medical Dept., 1945.

Encl: 1. (HW) Copies of Form NavMed-590 (Revised 9-47).

This letter from the Chief of BuMed contains information concerning the subject and states that all unused stocks of previously printed NavMed-590's, excepting NavMed-590 (Dental), are to be disposed of.

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ALNAV 219 8 October 1947 (Not Restricted)

Subj: Allowance for Interment of Remains.

Effective in cases where death occurs on or after 1 October 1947, the allowance for expenses incurred for interment of remains of deceased Navy and Marine Corps personnel will be increased from a maximum of fifty dollars to a maximum of seventy-five dollars. Appropriate correction is directed wherever reference to this allowance appears in Manual of the Medical Department, Marine Corps Manual, and all circulars of information and instruction which are forwarded to next of kin.

--SecNav.

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ALNAV 224 14 October 1947 (Not Restricted)

Subj: Examinations for Appointment to Rank of Lieutenant (j.g.), MC, USN, to be Repeated.

Refer AlNavs 184-47 and 196-47. Examination for appointment to rank of Lieutenant (j.g.), MC, USN, will be repeated 3 November 1947 for those candidates making decision too late to apply for first exam. Submit requests as directed in AlNav 196-47 to reach BuMed not later than 31 October 1947.

--SecNav.

NOTE: AlNav 196-47 stated that applications of officers on active duty may be submitted in form of letter request for authority to participate accompanied by recommendation of commanding officer. Letter should be addressed Chief of Naval Personnel, Attention Pers 3639, via BuMed Code 3424.

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